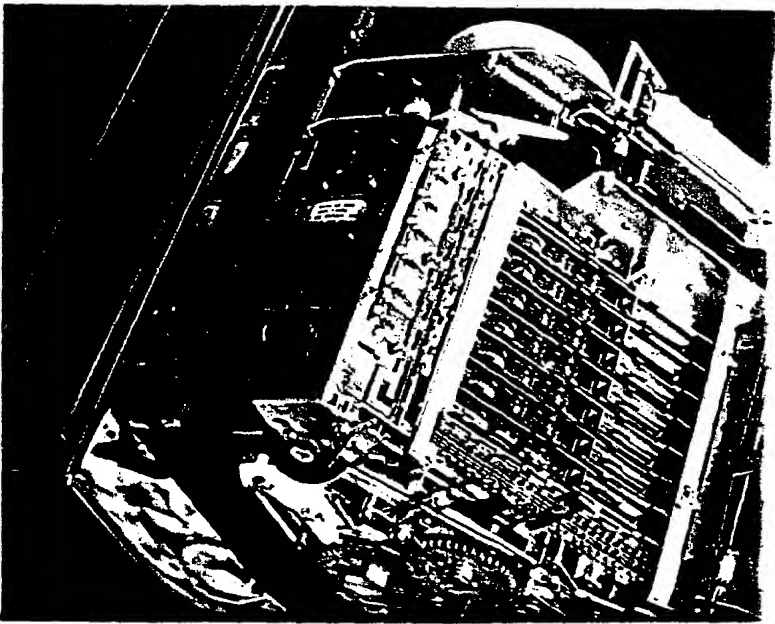


totals and change, and a separate device printed details of transactions on two strips of paper. One strip issued a printed receipt for each customer, while the other strip wound onto a roll used for auditing purposes.

EXHIBIT "A"



slow the pace of sales. Fast-food restaurants and other retailers who have a limited range of goods overcome this problem by using keypads that have a key for each item. The operator presses a single key that adds the price of the item to the running total of the sale as well as adding it to the sales tally for that item. The information entered on itemized keypads can be used to generate orders in a restaurant's kitchen or to call up goods from stock when an order is taken in a showroom.

This type of system makes price changes simple—the old price is changed in the memory of the cash register rather than on every item—and helps eliminate the keying of incorrect prices.



cash register can also print totals and numbers of transactions by sales person, department, cash, check, credit card, and so on, all by specific time of day to the second, if necessary.

Item coding and bar codes

The number of product lines that can be handled by an itemized keypad is limited by the number of keys on the pad. Item coding uses a number to identify products, so a wider range of products can be registered; for example, a four-figure code allows for up to ten thousand different product lines, numbered 0000 through 9999.

The item code represents an entry in a database within the cash register's memory. Each entry includes details such as a price and a product description. When the sales assistant enters an item number, the cash register finds the price and product description in the database. This information is then displayed and printed on a receipt.

In recent years, it has become almost universal practice to represent item codes by bar codes printed on the packaging of products. A bar code is a series of parallel lines of varying thicknesses.

The thickness of each line represents a digit of the item code. The bar code is read by a laser scanner: as the laser beam passes across the code, pulses of light are reflected back to a detector by the white spaces between the lines of the code.

The scanner can be a handheld device or it can be mounted in a checkout operator's desk. In the case of desk-mounted scanners, the item must be turned so that its bar code faces the scanner. The bar code is then read as the checkout operator passes the item over the scanner window. If the scanner cannot read a code or if it reads a code that cannot be found in the product database, the operator can attempt to register the item by keying its product number—located below the bar code—into the keypad.

Items that do not lend themselves to labeling include bread, fruit, and vegetables. In these cases, the bar code can be read from a card that has pictures or descriptions of the items next to their

lines or by dedicated leased lines.

Such a system provides much more information than cash-flow figures: sales can be broken down by individual EPOS terminals, by individual stores, and by the entire company. These can be used to identify weaknesses in store layout and in store locations as well as to highlight errors who might benefit from training. It can be used to discover busy periods, when more points or sales staff should be available.

A network of EPOS systems allows changes to be made on a companywide basis. These promotions might include discount multiple purchases of single items or for combination purchases of related items, such as portions and frozen vegetables.

With precise data available from each information about the sales of individual products can be used to adjust purchase orders suppliers. Sales trends can help to gauge impact of advertising campaigns, of price promotions, or of displaying items in new parts store; it can also help identify and discontinue slow-selling items.

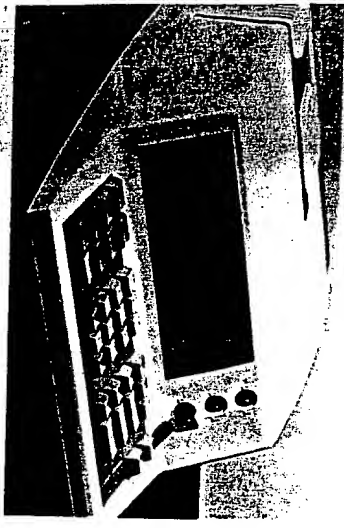
EFTPOS

Computer networking has widened the possibilities for instant cash-free transactions using credit and debit cards. The mechanism for transactions of this type is called electronic funds transfer at the point of sale, or EFTPOS. A card-reading device at a point of sale reads information from the magnetic strip of a card to identify the type of card and its issuing company. If the card is a debit card that has no limit, the system simply draws up a central clearing house to confirm that the card is valid and has not been stolen. If the card has a limit, it checks that the value of the transaction does not exceed that limit.



ow the page of sales. Fast-food restaurants and other retailers who have a limited range of goods overcome this problem by using keypads that have a key for each item. The operator presses a single key that adds the price of the item to the running total of the sale as well as adding it to the sales tally for that item. The information entered on itemized keypads can be used to generate orders in a restaurant's kitchen or to pick up goods from stock when an order is taken in a showroom.

This type of system makes price changes simple—the old price is changed in the memory of the cash register rather than on every item—and it eliminates the keying of incorrect prices.



identify products, so a wider range of products can be registered: for example, a four-figure code allows for up to ten thousand different product lines, numbered 0000 through 9999.

The item code represents an entry in a database within the cash register's memory. Each entry includes details such as a price and a product description. When the sales assistant enters an item number, the cash register finds the price and product description in the database. This information is then displayed and printed on a receipt.

In recent years, it has become almost universal practice to represent item codes by bar codes printed on the packaging of products. A bar code is a series of parallel lines of varying thicknesses. The thickness of each line represents a digit of the item code. The bar code is read by a laser scanner: as the laser beam passes across the code, pulses of light are reflected back to a detector by the white spaces between the lines of the code.

The scanner can be a handheld device or it can be mounted in a checkout operator's desk. In the case of desk-mounted scanners, the item must be turned so that its bar code faces the scanner. The bar code is then read as the checkout operator passes the item over the scanner window. If the scanner cannot read a code or if it reads a code that cannot be found in the product database, the operator can attempt to register the item by keying its product number—located below the bar code—into the keypad.

Items that do not lend themselves to labeling include bread, fruit, and vegetables. In these cases, the bar code can be read from a card that has pictures or descriptions of the items next to their bar codes. If such items are sold by weight, they can be weighed on an electronic scale attached to the register. When the bar code is read, the register calculates a price from the weight of the goods and their price per unit weight.

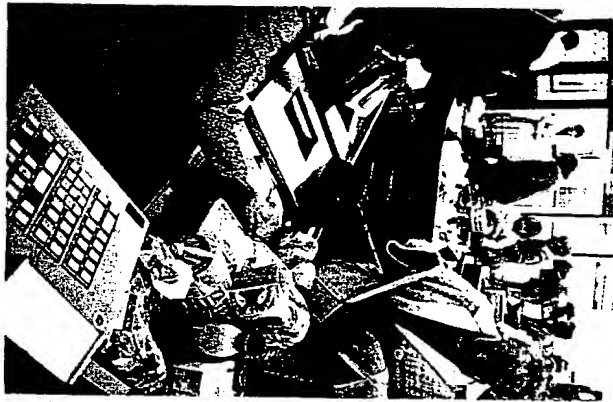
used to discover any patterns, which make sales points or sales staff should be available.

A network of EPOS systems allows price changes to be made on a companywide basis and promotions to be included in the pricing of items. These promotions might include discounts for multiple purchases of single items or for combination purchases of related items, such as meat portions and frozen vegetables.

With precise data available from each store, information about the sales of individual product lines can be used to adjust purchase orders from suppliers. Sales trends can help to gauge the impact of advertising campaigns, of price promotions, or of displaying items in new parts of a store; it can also help identify and discontinue slow-selling items.

EFTPOS

Computer networking has widened the possibilities for instant cash-free transactions using credit and debit cards. The mechanism for transactions of this type is called electronic funds transfer at the point of sale, or EFTPOS. A card-reading device at a point of sale reads information from the magnetic strip of a card to identify the type of card and its issuing company. If the card is a debit card that has no limit, the system simply dials up a central clearing house to confirm that the card is valid and has not been stolen. If the card has a limit, it checks that the value of the transaction does not exceed that limit.



▲ A number of low-power laser beams shine through the glass panel in the desk in front of this checkout operator. When the bar code of an item passes through a beam, the white spaces between the bars reflect pulses of light. A detector below the glass panel identifies the bar code from these pulses. The keyboard is only used to enter sums of money, or if a bar code cannot be read or is not recognized.

AUTOMATIC TELLER MACHINE (ATM) • CALCULATOR • CASH • COMPUTER • COMPUTER NETWORK • COUNTERFEITING AND FORGERY • DATA STORAGE • ELECTRONICS